



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS,
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/084,109 | 02/27/2002 | Hiromi Katoh | 46547/57,145 | 6866 |
| 21874 | 7590 | 05/07/2004 | EXAMINER | |
| EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205 | | | AWAD, AMR A | |
| | | ART UNIT | PAPER NUMBER | |
| | | 2675 | | |
| DATE MAILED: 05/07/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|------------------------|---------------------|
| | 10/084,109 | KATOH ET AL. |
| Examiner | Art Unit | |
| Amr Awad | 2675 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 27 February 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4-18 and 22-34 is/are rejected.

7) Claim(s) 3 and 19-21 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references cited in the information disclosure statement filed February 27, 2002 have been considered by the Examiner; see attached PTO-1449.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claim 28 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 25. See MPEP § 608.01(n). Accordingly, the claim (28-25) not been further treated on the merits.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 4-15, 18 and 23-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimada et al. (US patent NO. 6,219,017; hereinafter referred to as Shimada).

Shimada (figure 8) teaches a display device for dividing each frame into a number of subframes (R, G & B fields) and displaying one of the subframes after another, said device comprising: correction means for correcting a subframe signal representing one subframe by reference to another subframe signal representing another subframe, and a display panel for displaying each said subframe in accordance with the subframe signal that has been corrected by the correction means (col. 7, lines 13-41).

As to claim 2, the rejection to claim 2 is based on considering each color (R, G or B) as one subframe and the frame is the combination of R, G and B subframes. By considering that, we can see that Shimada showing correcting each subframe (R for example), which represents the first subframe of the current frame by referring to the B subframe of the previous frame, and when correcting the non-first one of the subframes (G for example), the previous subframe is the R subframe in the current frame (col. 7, lines 28-41).

As to claims 4-5, as can be seen in figures 8, Shimada shows that the signals of the R, G and B subframes are being refreshed (by using the looping of returning each signal to the field memory (8-1 to 8-3) (col. 7, lines 30-35).

As to claim 6, the broadest reasonable interpretation of the claim is considering the bypass subframe as the middle subframe (G subframe) and the first, second and third subframes (R, G and B) are displayed next to each other.

As to claims (7-1, 7-2-1, 7-4-1, 7-5-1 and 7-6-1), it is inherent that each color (R, G and B), which represents the subframes, has different wavelength range.

As to claims (8-1, 8-2-1, 8-4-1, 8-5-1 and 8-6-1) and (9-1, 9-2-1, 9-4-1, 9-5-1 and 9-6-1), Shimada shows three subframes (R, G & B) has three mutually different wavelength ranges and displays the subframes (figure 8).

As to claims 10, 11, (12-1, 12-2, 12-4, 12-5 and 12-6) and (13-1, 1-2-1, 13-4-1, 13-5-1 and 13-6-1) as can be seen in figure 8, Shimada shows a memory (field memory 8-1 to 8-3) to store the subframes (R, G & B) (col. 7, lines 28-40).

As to claims (14-1, 14-2-1, 14-4-1, 14-5-1 and 14-6-1) and (15-1, 16-2-1, 15-4-1, 15-5-1 and 15-6-1), the voltage V1 shown in figures 9-10 fairly reads one additional voltage level described in the claims (col. 9, lines 41-62).

As to claims 18-1, 18-2, 18-4, 18-5 and 18-6, as can be seen in col. 9, lines 53-62, Shimada shows that the correction to the subframes is carried out using an arithmetic operation.

As to claims (23-1, 23-2-1, 23-4-1, 23-5-1, 23-6-1) and (24-1, 24-2-1, 24-4-1, 24-5-1, 24-6-1), the claim is broad enough that we can consider the frame of Shimada includes three subframes (R, G & B) and wherein two of the subframes (RG or GB for example) are displayed within one frame interval (col. 7, lines 28-41).

As to claims (25-4, 25-5), (26-4, 26-5), 27, 28-30 Shimada shows a driving device (10) for receiving the subframes (9-1 to 9-3), which is fairly, reads on the claimed limitations.

As to claims 31 and 32, as can be seen in figure 9; Shimada teaches that the subframes (R, G or B) have constant time (col. 10, lines 2-52).

As to claims (33-6-1, 33-31-6-1, 33-32-1) and (34—6-1, 34-31-6-1, 34-32-6-1), Shimada shows that the correction of the subframe is based on the subframe that has been displayed just before the bypass subframe (col. 7, lines 28-41).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims (16-1, 16-2-1, 16-4-1, 16-5-1, 16-6-1), (17-16-1, 17-16-2-1, 17-16-4-1, 17-16-5-1, 17-16-6-1) and (22-1, 22-2-1, 22-4-1, 22-5-1, 22-6-1) are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada in view of Tanaka et al. (US patent NO. 6,700,559; hereinafter referred to as Tanaka).

As to claims (16-1, 16-2-1, 16-4-1, 16-5-1, 16-6-1), (17-16-1, 17-16-2-1, 17-16-4-1, 17-16-5-1, 17-16-6-1), Shimada does not expressly teach a lookup table for subframe signals representing the previous and current subframes, respectively to correct the subframe in accordance with the lookup table, and a nonvolatile memory on which data required for correcting the subframe.

However, Tanaka (figures 5-6) teaches a correction method for liquid crystal display that includes subframes (R, G & B), each has a LUT (7a) for storing the corrected data to be displayed (col. 8, lines 11-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Tanaka having LUT table for storing the corrected data, to be incorporated to Shimada's device so as motivated by Tanaka, to provide a liquid crystal display unit that can correct color reproduction particular to liquid crystal panel by a digital signal control, that can process the correction in high precision (col. 5, lines 28-32).

As to claims (22-1, 22-2-1, 22-4-1, 22-5-1, 22-6-1), Tanaka (figure 6) shows correcting the 8-bit subframe by adding 4 bits to it for correcting the color (col. 9, lines 2-27). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Tanaka, to be incorporated to Shimada's device so as motivated by Tanaka, to provide a liquid crystal display unit that can correct color reproduction particular to liquid crystal panel by a digital signal control, that can process the correction in high precision (col. 5, lines 28-32).

Allowable Subject Matter

8. Claims 3 (and all claims that depend on it) and 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prince et al. (US patent NO. 5,640,173) teaches a method and system for detecting and correcting dynamic cross talk effects appearing in moving display patterns.

Sato (US patent NO. 5,956,006) teaches a liquid crystal display apparatus and method of driving the same.

Tabata (US patent NO. 6,384,816) teaches an image display apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703)308-8485. The examiner can normally be reached on Monday-Friday, between 9:00AM to 5:30PM.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amr Ahmed Awad
5-1-2004
A.A